## (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 26 May 2005 (26.05.2005)

**PCT** 

(10) International Publication Number WO 2005/048382 A2

- (51) International Patent Classification7: H01M 4/86, 8/02
- (21) International Application Number:

PCT/JP2004/016380

- (22) International Filing Date: 28 October 2004 (28.10.2004)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2003-382655

12 November 2003 (12.11.2003) JP

- (71) Applicant (for all designated States except US): NISSAN MOTOR CO., LTD. [JP/JP]; 2, Takara-cho, Kanagawa-ku, Yokohama-shi, Kanagawa 2210023 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): SHIMOI, Ryoichi [JP/JP]; 4-36-13, Tomiokanishi, Kanazawa-ku, Yokohama-shi, Kanagawa 2360052 (JP). OHMA, Atsushi [JP/JP]; 1-43-20, Oooka, Minami-ku, Yokohama-shi, Kanagawa 2320061 (JP). ONO, Yoshitaka [JP/JP]; 3-15-8-505, Morisaki, Yokosuka-shi, Kanagawa 2380023 (JP).

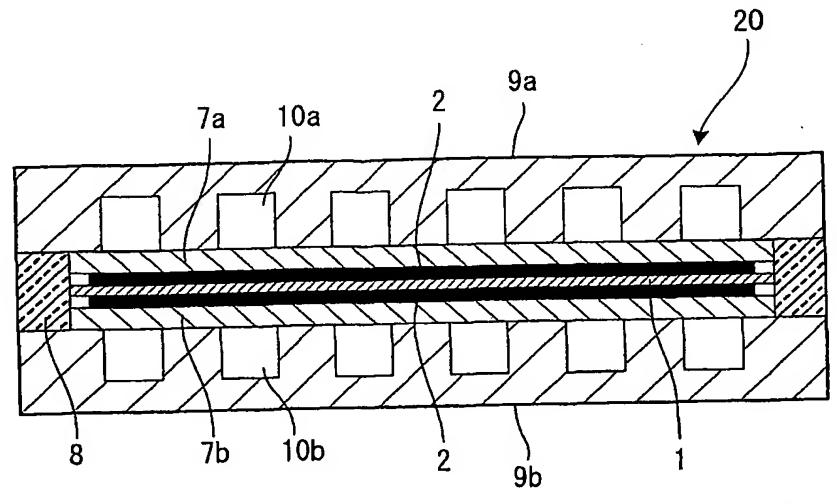
- (74) Agent: GOTO, Masaki; Shoyu-Kaikan, 3-1, Kasumi-gaseki 3-chome, Chiyoda-ku, Tokyo 1000013 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTROLYTIC MEMBRANE STRUCTURE FOR FUEL CELL AND FUEL CELL



(57) Abstract: A catalyst layer 2 is formed by conductive particles carrying catalyst particles 5, and a boundary layer is disposed adjacent to the catalyst layer 2 and is positioned between a portion which is easily contacted with an oxygen gas and the catalyst layer. The boundary layer 3 is formed by the conductive particles 4 carrying the catalyst particles 5 and a catalyst-carrying amount in the boundary layer 3 is smaller than a catalyst-carrying amount in the catalyst layer 2. Or a hydrophilic treatment is carried out to the conductive particles 4 of the boundary layer 3 by a hydrophilic material, while the conductive particles 4 in the boundary layer 3 do not carry the catalyst particles 5.

005/048382